

The following claims are presented for examination:

1. (Original) A method comprising:

determining an acoustic center of a transducer, wherein said transducer has a plurality of transducing elements; and

determining an offset of the determined acoustic center from a theoretical acoustic center.

2. (Original) The method of claim 1 wherein determining an acoustic center comprises ensonifying each of said transducing elements, one transducing element at a time.

3. (Original) The method of claim 1 wherein determining an acoustic center comprises ensonifying each of said transducing elements, wherein at least two of said transducing elements are ensonified simultaneously.

4. (Original) The method of claim 1 wherein determining an acoustic center comprises:
disposing a projector near a transducing element; and
ensonifying said element using said projector.

5. (Original) The method of claim 4 wherein determining an acoustic center comprises driving said projector by a signal generator.

6. (Original) The method of claim 1 wherein determining an acoustic center comprises obtaining an electrical response from each of said transducing elements.

7. (Original) The method of claim 6 wherein determining an acoustic center comprises electronically processing said electrical response using an algorithm.

8. (Original) The method of claim 6 wherein determining an acoustic center comprises generating a pictorial representation of said electrical response from each said transducing element.

9. (Original) The method of claim 1 further comprising designating said transducer as being one of either acceptable or not acceptable as a function of said offset.

10. (Original) A method comprising determining an acoustic center of each of a plurality of transducers, wherein each transducer has a plurality of transducing elements.

11. (Original) The method of claim 10 wherein determining an acoustic center for each one of said transducers comprises:

measuring a response characteristic of each transducing element in said transducer; and

calculating a weighted average of said response characteristic of each transducing element as a function of a relative location of said transducing element.

12. (Original) The method of claim 10 comprising determining an offset, for each transducer, from a theoretical or desired acoustical center.

13. (Original) The method of claim 12 comprising basing formal acceptance testing of each said transducer based on said offset for each of said transducers.

14. (Original) The method of claim 12 comprising predicting performance of an array of said transducers based on said offset of each of said transducers.

15. (Original) The method of claim 12 comprising selectively positioning said transducers in an array based on said offset of each of said transducers.

16. (Original) The method of claim 12 comprising basing signal processing calculations for an array of transducers on said offset of each of said transducers.

17. (Original) A method comprising:

calculating an acoustic center of each of a plurality of multi-element transducers;

calculating an offset for each of said plurality of multi-element transducers, wherein said offset is based on said calculated acoustic center and a theoretical acoustic center of each of said multi-element transducers; and

correcting signal processing calculations using said offsets.

18. (Original) A method for use with a transducer array, wherein said method comprises modifying signal-processing calculations to compensate for an offset between a theoretical

acoustic center of said transducer array and an actual acoustic center of said transducer array.

19. (Original) An apparatus for testing a transducer having a plurality of transducing elements, comprising:

a projector, wherein said projector generates a sound; and

a mechanical fixture, wherein said fixture aligns said projector with said transducing elements so that said projector can selectively ensonify said transducing elements.

20. (Original) The apparatus of claim 19 further comprising a signal generator, wherein said signal generator generates an electrical signal, and wherein said electrical signal is received by said projector, and further wherein said sound generated by said projector is based on said received electrical signal.

21. (Original) The apparatus of claim 19 further comprising a device for measuring an electrical output, wherein said electrical output is generated by each of said ensonified transducing elements in response to said sound.

22. (Original) The apparatus of claim 21 wherein said electrical output is measured as a voltage.

23. (Original) The apparatus of claim 21 wherein said device is a spectrum analyzer.

24. (Original) The apparatus of claim 21 further comprising a processor, wherein said processor:

receives information indicative of said electrical output of each of said ensonified transducing elements; and

determines an acoustic center of said transducer based on said information.

25. (Original) The apparatus of claim 21 comprising an output device, wherein said output device displays a representation of said electrical output, wherein asymmetry of said representation is indicative of an offset between an actual acoustic center and a theoretical acoustic center of said transducer.

26. (Original) The apparatus of claim 25 wherein said representation comprises an arrangement of pixels, wherein said asymmetry is proportional to said offset.

27. (Original) The apparatus of claim 25 wherein said representation comprises an arrangement of pixels, wherein a color of said pixels is representative of said electrical output.

28. (Original) An array comprising a plurality of transducers, wherein a distance between an acoustic center of neighboring transducers in said array is variable.